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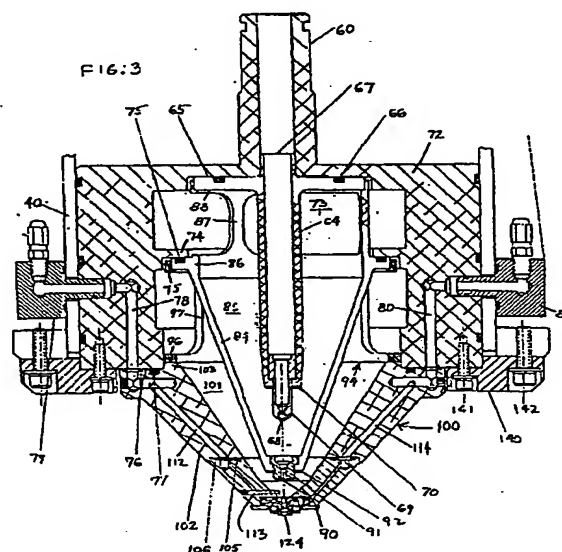
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(54) Apparatus for electron beam welding at atmospheric pressure

(57) Electron beam is focussed in a focussing column in a high vacuum environment and emitted downward through upper, middle, and lower orifices. A second stage vacuum duct concentrically surrounds a lower portion of the beam focussing column and separates the upper and middle orifices. A first stage vacuum duct concentrically surrounds the second stage vacuum duct and separates the middle and lower orifices. An outer wall surrounding the second duct tapers downward to the lower orifice, allowing it to be positioned as closely as desired to a workpiece regardless of surface topography. The apparatus comprises an orifice housing having an internal cavity which receives the lower part of the beam focussing column, an inner wall which defines the outer boundary of the second duct, and a support spool borne against by the outer wall, which is fixed to the bottom of the orifice housing and fixes the other components relative to each other in the housing.

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EUROPEAN SEARCH REPORT

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Place of search THE HAGUE		Date of completion of the search 22 September 2000	Examiner Haegeman, M
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